

seen. The index finger, passing toward the neck in front of the nerves, easily strikes the sharp edge of the omo-clavicular aponeurosis, where are the subclavian vessels, to which a double ligature *en masse*, not including the omo-hyoid muscle, should be applied, and the vessels divided. The artery should then be sought for and ligatured by itself, then the veins, and the vessels should be cut between the ligatures, just below the clavicle.

This done, the anterior flap should be marked out and dissected up; the same should be done for the posterior. Then the operator should seize the root of the limb firmly and draw upon it as if to tear it away; this disengages the superior and spinal borders which are quickly released by a rapid section of the double layer of muscles attached there. The operator then looks in the neck, without the brachial plexus and near the section of the levator anguli scapulæ, for the point where the posterior scapular artery was divided, seizes and ligatures it.—*French Congress of Surgery, Revue de Chirurgie*, Nov., 1886.

NERVOUS AND VASCULAR SYSTEM.

I. Distance-Suture of Tendons and Nerves and Some Applications of Animal Grafts. By GEORGE ASSAKY (Lille). This suture consists in connecting by long suture threads the two ends of parts, the apposition of which is unobtainable. The first suture of this kind was made by Benjamin Anger for the tendon of the extensor minimi digiti; the two ends were 9 cm. apart, but traction reduced the distance to 2 cm., and he connected them by a silver suture with a satisfactory result. Gluck substituted catgut in two cases with satisfaction. With M. Fargin, the author has applied distance sutures; the tendons regenerated along the threads are always stronger than those spontaneously regenerated; the number of tendinous fasciculi is greater. This operation is clearly indicated whenever apposition is impossible; it is more particularly applicable to tendons without a sheath.

They also made experiments upon the application of distance sutures to nerves. They interposed between the two ends of the divided nerves fragments of tendon, muscle and spinal cord. The

mechanical conditions had great influence in the regeneration of nerve tissues; catgut gave the best result; silk threads remained indefinitely in place without taking part in the nerve regeneration. In every case examined microscopically, the cicatrix contained connective tissue, but also a great quantity of nerve fibres. This operation then seems to be indicated when the apposition of the two ends of the divided nerve is impossible, and also after certain surgical operations, the ablation of a neuroma for example.

It was shown by their experiments that tendon may be grafted to animals of the same species and of different classes. These facts have already been applied to man twice. M. Peyrot has obtained in one case the transplantation of a dog's tendon and in another a cat's tendon. All attempts at nerve grafting completely failed; in certain cases there was no elimination, but it could be ascertained that the transplanted nerve-tissue did not enter into the regeneration.—*French Congress of Surgery, Revue de Chirurgie*, November, 1886.

II. Nerve Suture. By P. TILLAUX (Paris). Nerves may be sutured immediately after an accident or later, primarily or secondarily. It is said that the peripheral end of a divided nerve surely degenerates and that primary union is impossible; this is not true. A young man falling on some glass sustained a vast wound of the posterior face of the forearm; the median and ulnar nerves were divided and sensibility was entirely lost. They were sutured immediately and on the following day sensation had returned to the end of the fingers. The evidence of this case seems to be incontrovertible for the re-establishment of sensibility cannot be attributed to the anastomosis of the median and the ulnar for they were both divided; neither can it be attributed to the radial, for in that case sensation would have existed before the suture. It must be accepted then that the "nervous circulation" was re-established immediately after suture and that primary union of divided nerves can occur. In any event, if the suture does not secure primary union and immediate restoration of function, the two ends of the nerve are put in conditions the most favorable for union by granulation

Secondary suture should be performed in every case where primary suture has not been performed, whatever be the period from which the section dates. In one case where he had undertaken secondary suture, he found that the central end had granulated; it had sent out a grayish filament to meet the peripheral end, but it had fixed itself upon the tendon of the palmaris longus. In this case, the paralysis could not have been cured spontaneously. The two ends were sutured; the patient left the hospital without having gained anything, but at the time of the communication, he had regained sensibility. He makes the suture with a very fine needle, using a single thread; he punctures one of the ends of the nerve on its nearest face making the needle emerge at a diametrically opposite point, repeats the manœuvre in the opposite direction on the other end and ties the knot, taking care to bring the two surfaces into apposition, but not too closely, for in that case the neurilemma may be folded and introduced between the two surfaces, hindering the union of the nerve tissue. He concludes :

1. Nerve suture should always be performed primarily as well as secondarily.
2. It may reestablish almost immediately "nerve circulation".
3. In any case, it favors union by granulation. *French Congress of Surgery. Revue de chirurgie*, Nov. 1886.

JAMES E. PILCHER (U. S. Army).

III. Case of Ligature of the Common Carotid. By AUGUSTE REVERDIN (Geneva).

A man had been shot with a revolver in his right ear. By means of Trouvé's apparatus the bullet was found to be lodged in the bone. Efforts to dislodge it only resulted in such severe hæmorrhage from the petrous portion of the internal carotid artery that he at once had to cut down upon the common carotid and tie it. The injured vessel was afterwards divided between two ligatures. No syncope occurred during the operation, nor was it followed by any aphasia or hemiplegia. After several days the injury to the arteries was considered absolutely repaired, but a few weeks were allowed to elapse before

the patient was put under ether and the bullet removed without difficulty; the patient got quite well. It was considered necessary to remove the projectile, owing to the presence of a compound fracture of the cranium. An interesting point about the case is that after ligation of the common carotid the distal portion of the internal carotid did not bleed, and no cerebral symptoms were observed. This was probably due to a clot having been formed in its course which resisted owing to the antiseptic precautions taken.—*Proc. French Congress of Surgery*, 1886. *Le Progrès Médical*, Oct. 30, 1886.

IV. **Ligature of Right Internal Iliac Artery.** Before the Academy of Medicine, M. PONCET, of Lyons, reported having ligatured the right internal iliac artery for a pulsatile tumor of the right buttock. It is the first time the operation has ever been performed in France. The patient was a youth of 20, with a tumor the size of the fist. There were all the characters of an arterial aneurism and spontaneous bursting seemed imminent. M. Poncet employed the Marcellin Duval incision, and ligatured with carbolyzed silk. The tumor ceased pulsating at once and its volume diminished daily. After 22 days' treatment the patient left the hospital with a sinus at the lower angle of the wound. Two months afterwards he died from severe hæmorrhage after abundant suppuration. Post-mortem, the pelvis was found to contain a phlegmon in a state of suppuration from the lower end of which the hæmorrhage had occurred. The tumor was a subcutaneous arterial angioma,—*Le Progrès Médical*, Oct. 30, 1886.

L. S. MARK (London).

HEAD AND NECK.

I. **Two Cases of Gun-Shot Wound of the Palate.** By Dr. A. KOEHLER (Berlin). Gives two cases observed in Prof. Bardleben's clinic in Berlin, one of which died after one month, the other dismissed after eight months as recovered. He precedes the cases with some general remarks concerning gun-shot wounds of the skull especially those in which the projectile enters through the palate (to which the title of the paper applies), describes three specimens of such